Approved For Release 2008/04/23 : CIA-RDP78B04558A000600110079-8

TOP SECRET

041 30932

25X1

T O P S E C R E T [redacted] 06/0729Z

25X1

6 APR 25X1

[redacted]

1. THE FOLLOWING TECHNICAL INFORMATION NECESSARY FOR THE REDUCTION OF QUANTITATIVE DATA OBTAINED FROM PHOTOGRAPHY OF MISSION 9053 IS FORWARDED FOR YOUR INFORMATION.

HFS
CS
AGE
OFC
FILE

A. THIS PHOTOGRAPHY INVOLVES THE USE OF EIGHT CAMERAS: TWO MAIN CAMERAS, FOUR HORIZON CAMERAS, FRAMING CAMERA AND A STELLAR CAMERA.

B. OPERATIONAL FOCAL LENGTHS

		FWD UNIT	AFT UNIT
(1)	MAIN LENS	609.628 MM	609.602 MM
(2)	PORT HORIZON LENS	89.0 MM	89.2 MM
(3)	STARBOARD HORIZON LENS	88.9 MM	89.9 MM
(4)	STELLAR	83.58 MM	
(5)	INDEX	38.23 MM	

1963 APR 8 08 417

DEFINITION: "OPERATIONAL FOCAL LENGTH" IS DEFINED AS THE DISTANCE FROM THE MAIN LENS NODAL POINT TO THE FILM SURFACE AS MEASURED ON THE LENS BENCH, AND THE DATA REDUCED FOR A VACUUM CONDITION. (OPERATIONAL FOCAL LENTH IS EQUIVALENT FOCAL LENGTH COORECTED FOR ENVIRONMENT.)

C. LENS DISTORTION (PIN CUSHION)

		FWD UNIT	AFT UNIT
(1)	MAIN LENS		
	3 DEGREES	.003 MM	.002 MM
	2 DEGREES	.003 MM	.001 MM
	1 DEGREES	.001 MM	.000 MM

25X1

[redacted]

Group 1
Excluded from automatic downgrading and declassification

25X1

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0 DEGREES	.000	MM	.000	MM
359 DEGREES	.002	MM	.000	MM
358 DEGREES	.004	MM	.001	MM
357 DEGREES	.007	MM	.002	MM

(2) PORT HORIZON CAMERA

(RADICAL DISTORTION)

10 DEGREES	.010	MM	.008	MM
20 DEGREES	.040	MM	.039	MM

(TANGENTIAL DISTORTION)

MAXIMUM VECTOR	.010	MM	.010	MM

(3) STARBOARD HORIZON CAMERA

(RADIAL DISTORTION)

10 DEGREES	.003	MM	.009	MM
20 DEGREES	.038	MM	.043	MM

(TANGENTIAL DISTORTION)

MAXIMUM VECTOR	.009	MM	.012	MM

D. DEPRESSION ANGLES OF HORIZON CAMERAS RELATIVE TO NOMINAL MAIN CAMERA.

(1) FWD UNIT

A. PORT HORIZON CAMERA - 15 DEGREES 06' 45"

B. STARBOARD HORIZON CAMERA - 15 DEGREES 34' 17"

(2) A. PORT HORIZON CAMERA - 15 DEGREES 10' 30"

B. STARBOARD HORIZON CAMERA - 14 DEGREES 55' 40"

E. FILTER AND EXPOSURE DATA

(1) MAIN CAMERAS	FWD UNIT	AFT UNIT
FILTER	WRATTEN 21	WRATTEN 21

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APERTURE	F 3.5	F 3.5
SLIT WIDTH	.200"	.200"

(2) PORT HORIZON CAMERAS

FILTER	WRATTEN 25	WRATTEN 25
APERTURE	F 6.8	F 6.8
EXPOSURE	1/100 SEC.	1/100 SEC.

(3) STARBOARD HORIZON CAMERAS

FILTER	WRATTEN 25	WRATTEN 25
APERTURE	F 6.8	F 6.8
EXPOSURE	1/100 SEC.	1/100 SEC.

(4) STELLAR CAMERA

FILTER	NONE
APERTURE	F 1.9
EXPOSURE	1/2 SEC.

(5) INDEX CAMERA

FILTER	WRATTEN 21
APERTURE	F 4.5
EXPOSURE	1/125 SEC.

F. RESOLUTION CAPABILITIES

(1) MAIN LENS

A. FWD UNIT - 136 (L/MM AVG)

B. AFT UNIT - 144 (L/MM AVG)

(2) PORT HORIZON CAMERA

A. FWD UNIT - 36.9 (L/MM AVG)

B. AFT UNIT - 36.1 (L/MM AVG)

(3) STARBOARD HORIZON CAMERA

A. FWD UNIT - 37.3 (L/MM AVG)

B. AFT UNIT - 37.6 (L/MM AVG)

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(4) INDEX CAMERA - 75.8 (L/MM AWAR)

G. TIMING MARKS

TIMING MARKS WILL APPEAR ON THE FILM. RATE OF TIMING MARKS WILL BE 200 CYCLES PER SECOND.

H. FILM DATA

1. MAIN CAMERAS - SP 132
2. HORIZON CAMERAS - SO 132
3. STELLAR CAMERA - SO 130 / SO 102
4. INDEX CAMERA - SO 206

I. CALIBRATED ANGLES OF CAMERA

1. CALIBRATED CONVERGENT ANGLE OF MAIN CAMERAS - 29 DEGREES 57.72 MIN.
2. CALIBRATED ANGLE BETWEEN FRAMING AND STELLAR CAMERAS - (NOT AVAILABLE AT THIS TIME)
3. STELLAR

   X EQUAL PLUS .142 MM

   Y EQUAL MINUS .069 MM

   NOTE: VIEWING POSITIVE, EMULSION UP, COORDINATE SYSTEM IS DEFINED AS PLUS "Y" IS IN DIRECTION OF FLIGHT PLUS "X" IS TO THE LEFT AND PERPENDICULAR TO LINE OF FLIGHT.

(4) INDEX

   X EQUAL MINUS .027 MM

   Y EQUAL MINUS .027 MM

   NOTE: VIEWING POSITIVE, EMULSION UP PLUS "X" IN DIRECTION OF FLIGHT AND MINUS "Y" TO THE RIGHT AND PERPENDICULAR TO DIRECTION OF FLIGHT.

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J, CAMERA OPERATION DATA

PASS	CAMERA	CAMERA ON TIME (ZEBRA TIME) DAY	HOUR	MIN.	CYCLE PERIOD SEC CAMERA ON	CAMERA OFF
1A1	FWD	2	00	19	3.54	3.38
1A1	AFT	2	00	19	3.60	3.44
1D1	FWD	2	00	25	3.09	3.00
1D1	AFT	2	00	25	3.19	3.09
2A1	FWD	2	01	48	3.68	3.57
2A1	AFT	2	01	48	3.71	3.60
2D1	FWD	2	01	54	3.14	2.86
2D1	AFT	2	01	54	3.17	2.89
3D1	FWD	2	03	26	3.03	2.94
3D1	AFT	2	03	26	3.06	2.97
3D2	FWD	2	03	31	2.79	2.70
3D2	AFT	2	03	31	2.82	2.73
4D1	FWD	2	04	59	2.89	2.81
4D1	AFT	2	04	59	2.92	2.84
4D2	FWD	2	05	03	2.74	2.64
4D2	AFT	2	05	03	2.77	2.67
5D1	FWD	2	06	33	2.76	2.67
5D1	AFT	2	06	33	2.79	2.70
5D2	FWD	2	06	36	2.63	2.55
5D2	AFT	2	06	36	2.66	2.58
6D1	FWD	2	08	02	2.88	2.72
6D1	AFT	2	08	02	2.91	2.75
6D2	FWD	2	08	07	2.68	2.49
6D2	AFT	2	08	07	2.69	2.50

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6D3	FWD	2	08	16	2.43	2.43
6D3	AFT	2	08	16	2.46	2.46
7D1	FWD	2	09	32	3.01	2.83
7D1	AFT	2	09	32	3.01	2.83
7D2	FWD	2	09	36	2.80	2.52
7D2	AFT	2	09	36	2.83	2.57
8D1	FWD	2	11	00	3.21	2.83
8D1	AFT	2	11	00	3.25	2.88
9D1	FWD	2	12	34	2.89	2.73
9D1	AFT	2	12	34	2.92	2.75
9D2	FWD	2	12	41	2.56	2.50
9D2	AFT	2	12	41	2.58	2.53
21D1	FWD	3	06	42	2.89	2.76
21D1	AFT	3	06	42	2.91	2.78
21D2	FWD	3	06	46	2.68	2.53
21D2	AFT	3	06	46	2.70	2.55
21D3	FWD	3	06	56	2.46	2.46
21D3	AFT	3	06	56	2.48	2.48
22D1	FWD	3	08	12	2.88	2.74
22D1	AFT	3	08	12	2.90	2.76
22D2	FWD	3	08	16	2.72	2.54
22D2	AFT	3	08	16	2.74	2.56
22D3	FWD	3	08	26	2.46	2.46
22D3	AFT	3	08	26	2.48	2.48
23D1	FWD	3	09	39	2.83	2.58
23D1	AFT	3	09	39	2.84	2.59
23D2	FWD	3	09	46	2.55	2.41

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23D2	AFT	3	09	46	2.56	2.42
24D1	FWD	AFT CAMERA "MONO-MODE"				
24D1	AFT	3	11	13	2.82	2.55
35A1	FWD	4	03	39	3.84	3.56
35A1	AFT	4	03	39	3.87	3.60
35D1	FWD	4	03	50	2.83	2.68
35D1	AFT	4	03	50	2.83	2.68
39D1	FWD	4	09	49	3.05	2.55
39D1	AFT	4	09	49	3.09	2.59
40D1	FWD	4	11	22	2.85	2.63
40D1	AFT	FWD CAMERA "MONO-MODE"				
40D2	FWD	4	11	29	2.53	2.53
40D2	AFT	FWD CAMERA "MONO-MODE"				

NOTE: SCAN VELOCITY, INCHES PER SECOND EQUALS 150.7 Q DIVIDED BY THE CYCLE PERIOD IN SECONDS.

IMAGE MOTION COMPENSATION VELOCITY INCHES PER SECOND AT CENTER OF FORMAT EQUALS 2.0251 DIVIDED BY CYCLE PERIOD IN SECONDS.

K. TIME CORRELATION (READINGS IN MILLISECONDS)

PASS	SYSTEM TIME	BINARY CLK TIME	DELTA SYSTEM TIME	DELTA BINARY TIME	DIFFERENCE
9	44143.614	71.632	62941.748	62941.773	.025
25	44742.997	87071.007	86999.383	86999.375	-.008
31	78871.649	121199.658	34128.652	34128.651	-.001
41	45327.617	174055.627	52855.968	52855.969	-.001

SYSTEM TIME IS UNIVERSAL TIME EXPRESSED IN MILLISECONDS.

THIS DATA IF OFFERED FOR CORRELATION WITH PRELIMINARY EPHEMERIS I.E, BEST GUESS

L. COMBINING IMC AND PROGRAM TIME DATA NECESSITATES CHANGE IN FORMAT FROM THAT OF PREVIOUS MISSIONS.

T O P S E C R E T

CFN

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